61/6.2A WS A, S, A, S, A, S Name Danielle Per ____

Solve the triangles.

1. A = 40°, B = 30°, and b = 10

a = 12.8 b = 10
∠A = 40 ∠B = 30
c = 18.8
∠C = 110

Law of sines

2. a= 5, b= 9, c= 7

a = 5
∠A = 33.6
b = 9
∠B = 95.7
c = 7
∠C = 50.7

Law of cosines

3. A = 55°, b = 12, c = 7

a = 9.8
∠A = 55
b = 12
∠B = 89.3
c = 7
∠C = 35.7

Law of cosines

4. A = 36°, a = 2, b=7

a = 2
∠A = 36
b = 7
∠B =
c =
∠C =

DNE

5. C = 36°, a = 17, c = 16

a = 17
∠A = 38.6 | 141°
b = 26.2 | 1.2
∠B = 105.3 | 2.6°
c = 16
∠C = 36

2 Δ's

6. A = 36°, B = 48°, c = 13.5

a = 7.97
∠A = 36
b = 10.1
∠B = 48
c = 13.5
∠C = 96

Find the area with the given information.

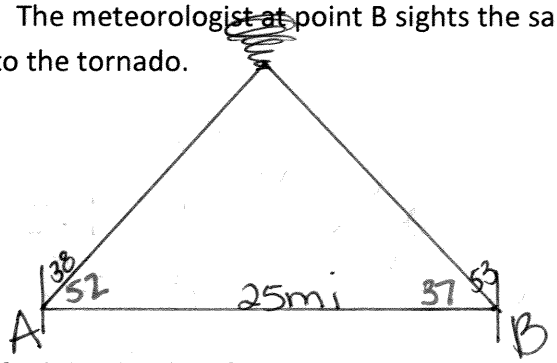
7. B = 42°, c = 18, a = 10

60.22 un^2

8. a = 4, b = 5, c = 8

8.99 un^2

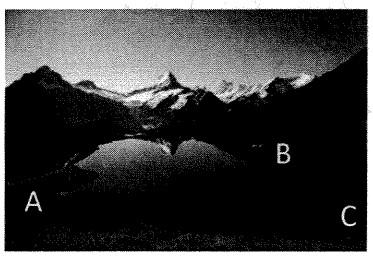
9. Two meteorologists are 25 mi apart located on an east-west road. The meteorologist at Point A sights a tornado N38°E. The meteorologist at point B sights the same tornado N53°W. Find the distance from each meteorologist to the tornado.



a = 19.7

b = 15.04

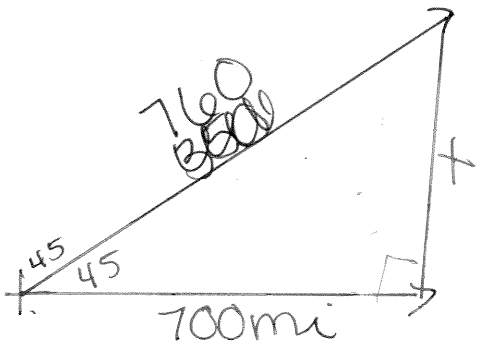
10. Tony must find the distance from A to B on opposite sides of the lake. He locates a point C that is 860 ft from A and 175ft from B. He measures the angle at C to be 78°. Find the distance from A to B.



a = 175 b = 860 c = 841.2

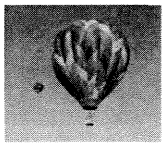
∠A = 11.7 ∠B = 90.25 ∠C = 78°

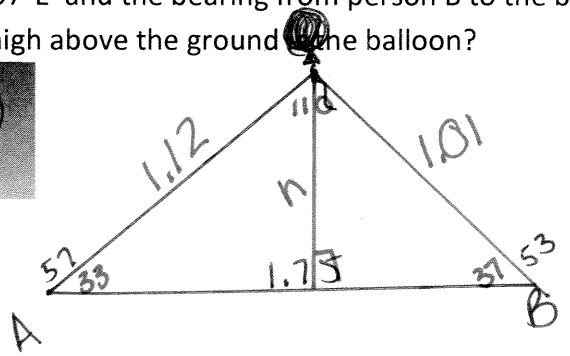
11. Two airplanes flying together in formation take off in different directions. One flies due east at 350 mph, and the other flies N45°E at 380 mph. How far apart are the two airplanes 2 hours after they separate, assuming that they fly at the same altitude?



x = 561.46 mi

12. Two observers spot a hot air balloon. Person A is due west of person B. The bearing from person A to the balloon is N57°E and the bearing from person B to the balloon is N53°W. If the two people are 1.75 miles apart, how high above the ground is the balloon?

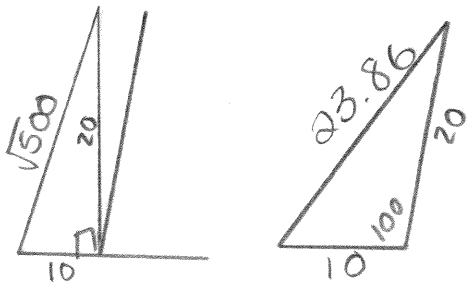




h = .61 mi

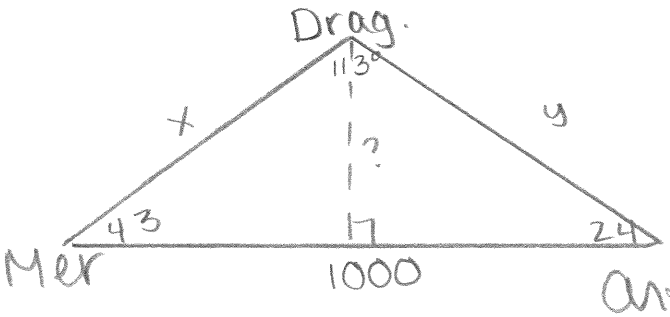
6.1/6.2 B Word Problem WS Name Danielle Per____

1. A 20 ft. telephone pole was hit by a car and is now leaning 10° from vertical. The guy wire (the metal line that connects the top of the pole to the ground) is attached to the ground 10 feet from the base of the pole. How long is the guy wire when the pole is vertical? How far was it pulled out of the ground after the accident?



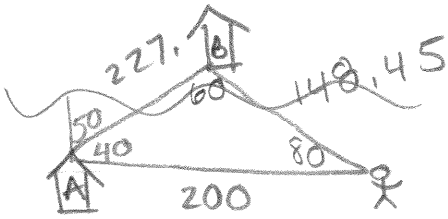
guy wire = 22.36 ft
pulled out 1.5 ft

2. Merlin and Arthur are standing 1000 feet apart fighting in an epic battle. They both look up and see the dragon in the air coming to their aide. Merlin looks up at an angle of elevation of 43° and Arthur looks up at an angle of elevation of 24°. What is the distance from Merlin to the dragon? What is the distance from Arthur to the dragon? What is the dragon's altitude?



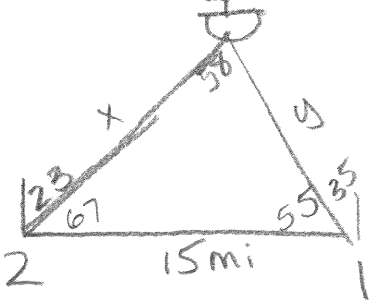
x = 441.9ft
y = 740.9ft
alt = 301.35ft

3. Two houses are on opposite sides of a creek, which runs east to west. A surveyor can see both houses from a point down the creek. The angle at which the surveyor sees both houses is 80° and he is due east 200 yd. from house A. The bearing from house A to house B is N50°E. What is the distance between the houses?



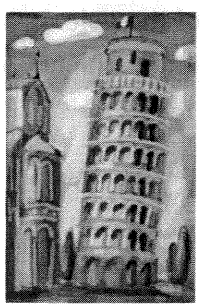
Distance btwn A & B = 227.43yd

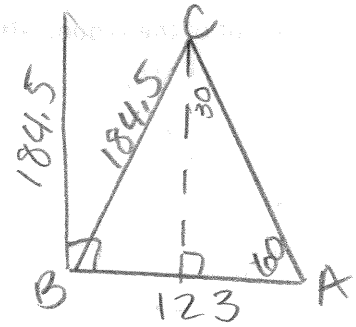
4. Two naval bases receive a distress call from a boat out at sea. Station 1 has a bearing of N35°W to the ship and station 2 has a bearing of N23°E. Station 1 is due east of station 2 and the stations are 15 miles apart. Which station should send out a rescue boat? Why?



x = 14.5mi y = 16.3mi
Station 1 b/c its closer

5. The famous Leaning Tower of Pisa was originally 184.5 feet high. At a distance of 123 feet from the base of the tower, the angle of elevation to the top of the tower is found to be 60^0. Find the angle the tower is now making with the ground. Also, find the new height of the tower.





ASS

$A=\angle 60 \quad a=184.5 \quad c=123$

$\angle B=84.73 \quad b=212.144$

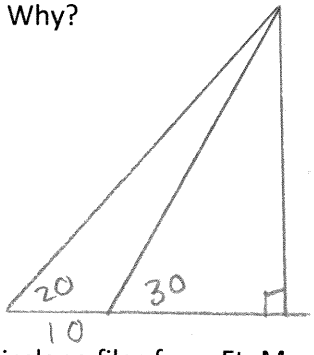
$\angle C=35.26$

or

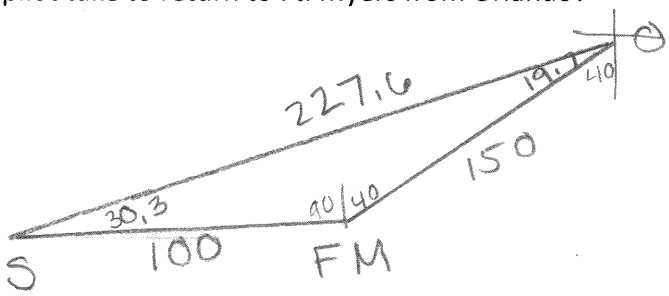
$\angle B=95.27 \quad b=212.142$

$\angle C=24.73$

6. Pat needs to determine the height of a tree before cutting it down to be sure it will not fall on a nearby fence. The angle of elevation of the tree from a position on flat path from the tree is 30^0, and from a second position 10 feet farther along this path it is 20^0. The fence is 8 feet away from the tree. Will the tree hit the fence? Why?



7. An airplane files from Ft. Myers due east to Sarasota, a distance of 150 miles and then turns at a bearing of $N40^0E$ and flies to Orlando, a distance of 100 miles. How far is it from Ft Myers to Orlando? What bearing should the pilot take to return to Ft. Myers from Orlando?



S40°W

8. Make your own word problem. Show all calculations and final answer. You can choose to give the picture or make the person draw their own. Don't just copy one from the book.

6.1/6.2 B Word Problem WS Name _____ Per____

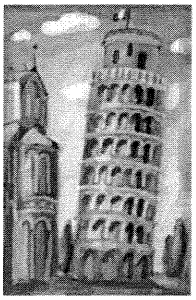
1. A 20 ft. telephone pole was hit by a car and is now leaning 10° from vertical. The guy wire (the metal line that connects the top of the pole to the ground) is attached to the ground 10 feet from the base of the pole. How long is the guy wire when the pole is vertical? How far was it pulled out of the ground after the accident?

2. Merlin and Arthur are standing 1000 feet apart fighting in an epic battle. They both look up and see the dragon in the air coming to their aide. Merlin looks up at an angle of elevation of 43° and Arthur looks up at an angle of elevation of 24°. What is the distance from Merlin to the dragon? What is the distance from Arthur to the dragon? What is the dragon's altitude?

3. Two houses are on opposite sides of a creek, which runs east to west. A surveyor can see both houses from a point down the creek. The angle at which the surveyor sees both houses is 80° and he is due east 200 yd. from house A. The bearing from house A to house B is N50°E. What is the distance between the houses?

4. Two naval bases receive a distress call from a boat out at sea. Station 1 has a bearing of N35°W to the ship and station 2 has a bearing of N23°E. Station 1 is due east of station 2 and the stations are 15 miles apart. Which station should send out a rescue boat? Why?

5. The famous Leaning Tower of Pisa was originally 184.5 feet high. At a distance of 123 feet from the base of the tower, the angle of elevation to the top of the tower is found to be 60^0. Find the angle the tower is now making with the ground. Also, find the new height of the tower.



6. Pat needs to determine the height of a tree before cutting it down to be sure it will not fall on a nearby fence. The angle of elevation of the tree from a position on flat path from the tree is 30^0, and from a second position 10 feet farther along this path it is 20^0. The fence is 8 feet away from the tree. Will the tree hit the fence? Why?

7. An airplane files from Ft. Myers due east to Sarasota, a distance of 150 miles and then turns at a bearing of $N40^0E$ and flies to Orlando, a distance of 100 miles. How far is it from Ft Myers to Orlando? What bearing should the pilot take to return to Ft. Myers from Orlando?

8. Make your own word problem. Show all calculations and final answer. You can choose to give the picture or make the person draw their own. Don't just copy one from the book.

6.2LWs Name Danielle Per

Solve the triangles.

1. A = 40°, B = 30°, and b = 10

A = 40 a = 12.9
B = 30 b = 10
C = 110 c = 18.8

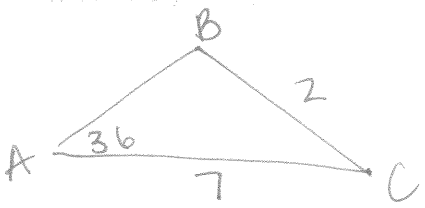
2. a = 5, b = 9, c = 7

A = 38. a = 5
B = 96 b = 9
C = 51 c = 7

3. A = 55°, b = 12, c = 7

A = 55 a = 9.8
B = 89.3 b = 12
C = 35.7 c = 7

4. Solve the triangle.



DNE

5. Solve the triangle.

A = 38.6 a = 17
B = 105.4 b = 26.2
C = 36 c = 16

6. Solve the triangle.

A = 36 a = 8
B = 48 b = 10
C = 96 c = 13.5

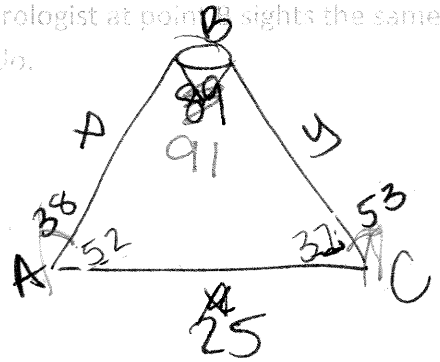
7. Find the area of the triangle.

A: 60.22

8. Find the area of the triangle.

8. 18 = Area

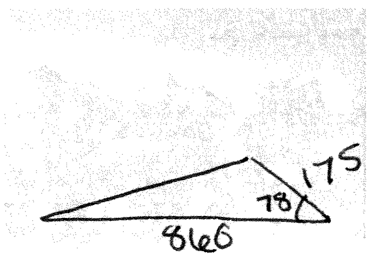
9. Two meteorologists are 25 mi apart located on an east-west road. The meteorologist at Point A sights a tornado N38°E. The meteorologist at point B sights the same tornado N53°W. Find the distance from each meteorologist to the tornado.



person C = 15. mi

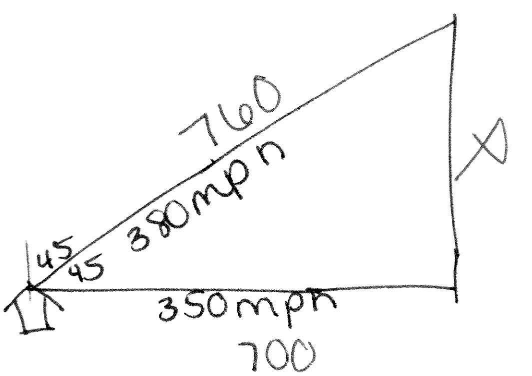
person A = 19.7 mi

10. Tony must find the distance from A to B on opposite sides of the lake. He locates a point C that is 860 ft from A and 175ft from B. He measures the angle at C to be 78°. Find the distance from A to B.



side c = 841.2 ft

11. Two airplanes fly together in formation [illegible] 350 mph, and the other flies N45°E at 380 mph. How far apart are the two airplanes 2 hours after they separate, assuming that they fly at the same altitude?

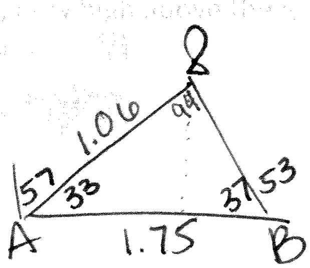


c = 561.46mi

[illegible]

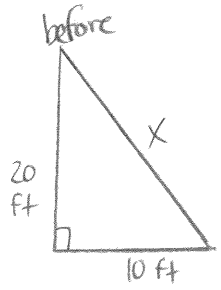
$\sin 33 = \frac{x}{1.06}$

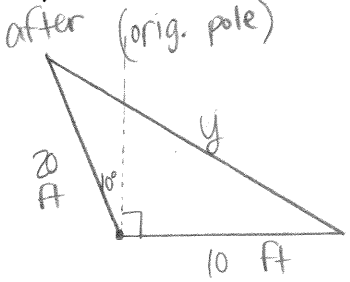
height = .58mi



Day 7 Word Problem WS Name Answer Key Per____

1. A 20 ft. telephone pole was hit by a car and is now leaning 10° from vertical. The guy wire (the metal line that connects the top of the pole to the ground) is attached to the ground 10 feet from the base of the pole. How long is the guy wire when the pole is vertical? How far was it pulled out of the ground after the accident?





$x = \sqrt{20^2 + 10^2} \approx 22.361$ ft

$y = \sqrt{20^2 + 10^2 - 2(20)(10)\cos 110°} \approx 25.235$ ft

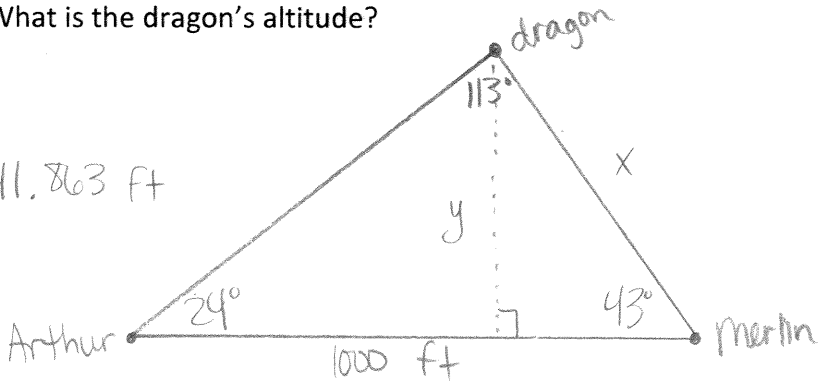
$\uparrow_{100}$

It was pulled 2.874 ft out of the ground.

2. Merlin and Arthur are standing 1000 feet apart fighting in an epic battle. They both look up and see the dragon in the air coming to their aide. Merlin looks up at an angle of elevation of 43° and Arthur looks up at an angle of elevation of 24°. What is the dragon's altitude?

$\frac{\sin 113°}{1000} = \frac{\sin 24}{x}$

$x = \frac{1000 \sin 24}{\sin 113} \approx 441.863$ ft

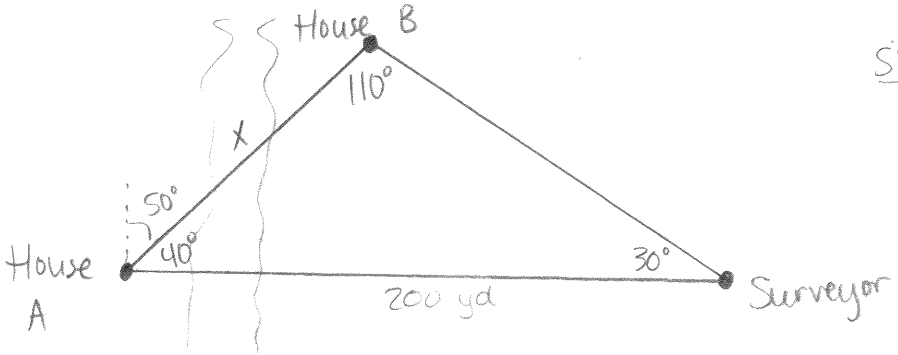


$\sin 43 = \frac{y}{441.863}$

$y \approx 301.350$ ft

3. Two houses are on opposite sides of a river. A surveyor can see both houses from a point down the river. The angle at which the surveyor sees both houses is 30° and he is due east from house A. The bearing from house A to house B is N50°E. What is the distance between the houses?

200 yd house A → surveyor



$\frac{\sin 110}{200} = \frac{\sin 30}{x}$

$x \approx 106.42$ yds

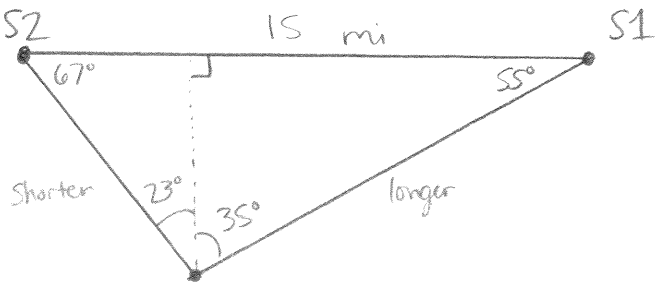
4. Two naval bases receive a distress call from a boat out at sea. Station 1 has a bearing of N35°E to the ship and station 2 has a bearing of N23°W. Station 1 is due east of station 2 and the stations are 15 miles apart. Which station should send out a rescue boat? Why?

Station 2 is closer because

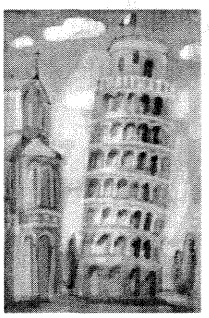
$23° < 35°$

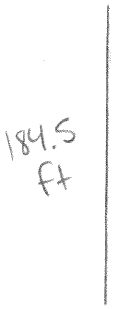
and/or

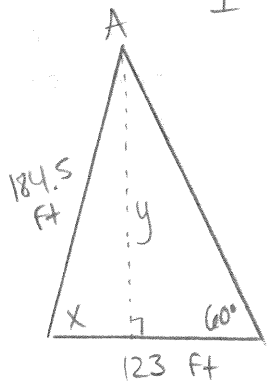
$55° < 67°$



5. The famous Leaning Tower of Pisa was originally 184.5 feet high. At a distance of 123 feet from the base of the tower, the angle of elevation to the top of the tower is found to be 60^0. Find the angle the tower is now making with the ground. Also, find the new height of the tower.







1 Δ b/c 184.5 > 123!

$\frac{\sin 60}{184.5} = \frac{\sin A}{123}$

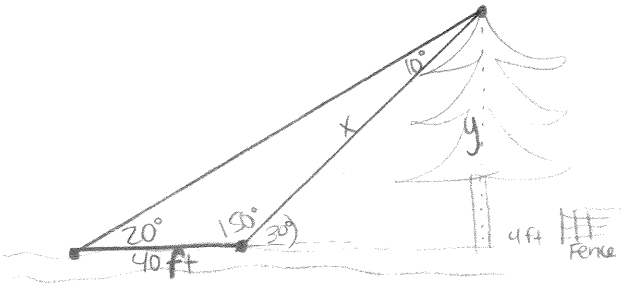
$A \approx 35.264°$

so $X \approx 84.736°$

$\sin 84.736 = \frac{y}{184.5}$

$y \approx 183.72$ ft

6. Pat needs to determine the height of a tree before cutting it down to be sure it will not fall on a nearby fence. The angle of elevation of the tree from on position on flat path from the tree is 30^0, and from a second position 40 feet farther along this path it is 20^0. The fence is 4 feet away from the tree. Will the tree hit the fence? Why?



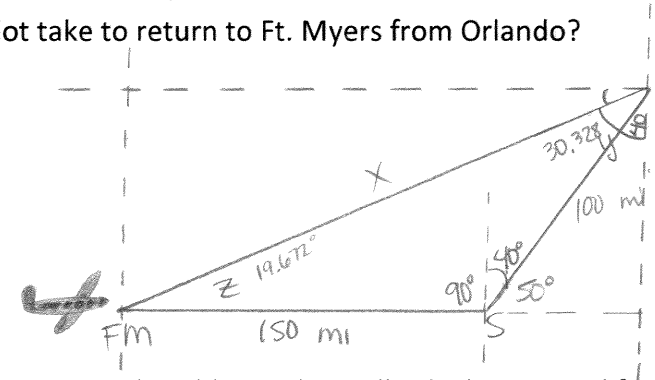
$\frac{\sin 10}{40} = \frac{\sin 20}{x}$ $x \approx 78.785$ ft

$\sin 30° = \frac{y}{78.785}$

$y \approx 39.393$

Yes, because the tree is almost 40 ft tall

7. An airplane files from Ft. Myers due east to Sarasota, a distance of 150 miles and then turns at a bearing of $N40^0E$ and flies to Orlando, a distance of 100 miles. How far is it from Ft Myers to Orlando? What bearing should the pilot take to return to Ft. Myers from Orlando?



$x^2 = 150^2 + 100^2 - 2(150)(100)\cos 130°$

$x \approx 227.56$ mi

$\frac{\sin 130}{227.56} = \frac{\sin z}{100}$

$z \approx 19.672°$

$y = 70.328° \rightarrow S\ 70.33°\ W$

8. Make your own word problem. Show all calculations and final answer. You can choose to give the picture or make the person draw their own. Don't just copy one from the book.

① AAS, Law of Sines AcBaCb

A = 24° a = 12.2
B = 68° b = 27.81
C = 88° c = 29.98

$\frac{\sin 24}{12.2} = \frac{\sin 68}{b}$

$\frac{\sin 24}{12.2} = \frac{\sin 88}{c}$

② SSS, Law of Cosines AcBaCb

A = 83.4° a = 10
B = 44.0° b = 7
C = 52.6° c = 8

$7^2 = 10^2 + 8^2 - 2(10)(8)\cos B$

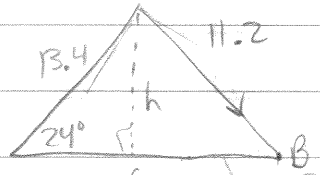
$8^2 = 7^2 + 10^2 - 2(7)(10)\cos C$

③ SSA, Law of Sines AcBaCb

A = 24° a = 11.2
B = 29.1° b = 13.4
C = 126.9° c = 22.02

$\frac{\sin 24}{11.2} = \frac{\sin B}{13.4}$

$\frac{\sin 24}{11.2} = \frac{\sin 126.9}{c}$

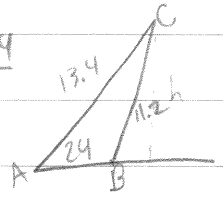


$h = (13.4)\sin 24°$

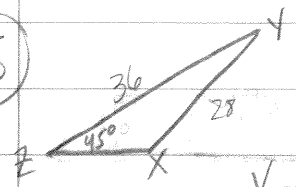
$h = 5.45$

A = 24° a = 11.2
B = 150.9° b = 13.4
C = 5.1 c = 2.45

$\frac{\sin 5.1}{c} = \frac{\sin 24}{11.2}$



⑤ SSA $\frac{\sin 45}{28} = \frac{\sin X}{36}$



X = 114.6° x = 36 X = 65.4°

Y = 20.4° y = 13.8 180 − X = 114.6°

Z = 45° z = 28

$\frac{\sin 114.6}{36} = \frac{\sin 20.4}{y}$

(25) $k = -\frac{1}{2}$

(27) $10\left(\cos\frac{3\pi}{4} + i\sin\frac{3\pi}{4}\right) = -5\sqrt{2}$

(29) $r = \sqrt{13}$

$\theta = \tan^{-1}\left(\frac{3}{2}\right) = 56.31°$

$\sqrt{13}^6(\cos 6\cdot 56.31° + i\sin 6\cdot 56.31°)$

$2197(\cos 337.86 + i\sin 337.86)$

$2035.01 - 827.99i$

(30) $8 + 0i \qquad \sqrt[3]{8}\left(\cos\frac{2\pi k}{3} + i\sin\frac{2\pi k}{3}\right)$

$r = 8$

$\theta = 0°$

$k = 0$	2
$k = 1$	$-1 + \sqrt{3}i$
$k = 2$	$-1 - \sqrt{3}i$

(4)

$A = 23.4°$	$a = 41.00$	SAS
$B = 33.5°$	$b = 57$	
$C = 123.1°$	$c = 86.5$	

$a^2 = 57^2 + 86.5^2 - 2(57)(86.5)\cos 23.4°$

$\frac{\sin B}{57} = \frac{\sin 23.4°}{41}$

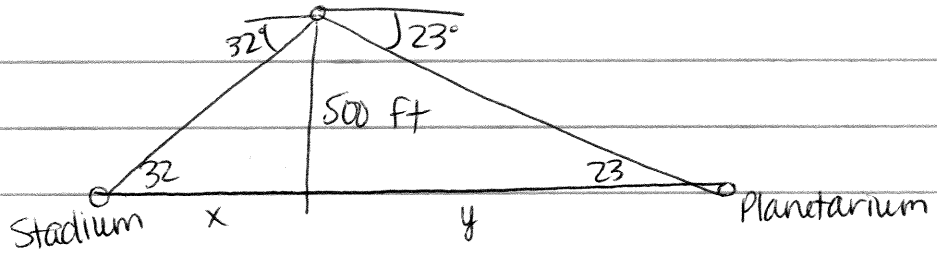
(6) $\sqrt{114(114-75)(114-68)(114-85)} \approx 2435.36\ m^2$

$$\frac{2435.36\ m^2}{75}$$

32.47 cans

buy 33 cans

(8)



$\tan 32 = \frac{500}{x}$ $\tan 23 = \frac{500}{y}$

Pre-Calculus 6.1-6.3 WS Day 10 Name Answer Key Per ____

Do all work on a separate piece of paper.

Solve each triangle. Round all angle values one decimal place and sides two decimal places.

1. a = 3, b = 5, c = 7
A=21.8°; B=38.2°; C=120°

2. B = 60°, a = 3, c = 8
b=7; A=21.8°; C=98.2°

3. A = 36°20', C = 80°, c = 964
a=579.96; b=877.29; B=63°40'

4. The bearing of a lighthouse from a ship was found to be N37°E. After the ship sailed 2.5 miles due south, the new bearing was N25°E. Find the distance between the ship and the lighthouse at each location?

5. The bearing from Atlanta to Macon is S27°E, and the bearing from Macon to Augusta is N63°E. An automobile traveling at 60 mph needs 1.25 hr. to travel from Atlanta to Macon and 1.75hr. to go from Macon to Augusta. Find the distance between Atlanta and Augusta.

6. The angle of elevation from a point on the ground to the top of a pyramid is 35.5°. The angle of elevation from a point 135ft. farther back to the top of the pyramid is 21.17°. Find the height of the pyramid.

7. A surveyor wishes to find the distance between two inaccessible points A and B. While standing at point C, she finds that the angle between the lines of sight to A and B is 46.3°. If AC is 350m long and BC is 286m long, find AB.

8. A passenger in an airplane at an altitude of 10km. sees two towns directly to the east of the plane. The angles of depressions to the two towns are 28° and 55°. How far apart are the towns?

Find the area of each triangle. Round answers two decimal places.

9. B= 45°, a = 2, c = 4
2.83

10. a= 6, b= 5, c= 8
14.98

11. a= 3, c = 2, B= 110°
2.82

Use v= 3i – 4j and u= -2i + 3j for the following problems.

12. Find $\|v\|$.
$\|v\| = 5$

13. Find 3v – 2u.
$(9i-12j)-(-4i+6j)$
$13i-18j$

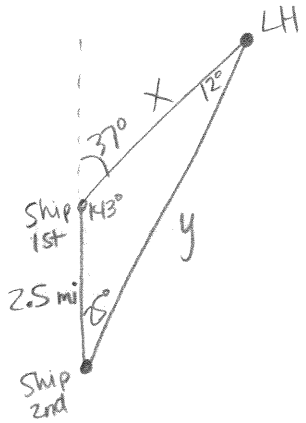
14. Find a unit vector that has the same direction as u.
$\frac{-2\sqrt{13}}{13}i + \frac{3\sqrt{13}}{13}j$

15. Find the direction angle of v.
126.87°

16. Find the component form of v if it makes a 150° with the positive x axis.
$\langle 5\cos 150°, 5\sin 150° \rangle$
$\langle \frac{-5\sqrt{3}}{2}, \frac{5}{2} \rangle$

17. Find the component form of u if it makes a 45° with the positive x axis.
$\langle \sqrt{13}\cos 45°, \sqrt{13}\sin 45° \rangle$
$\langle \frac{\sqrt{26}}{2}, \frac{\sqrt{26}}{2} \rangle$

(4) ASA



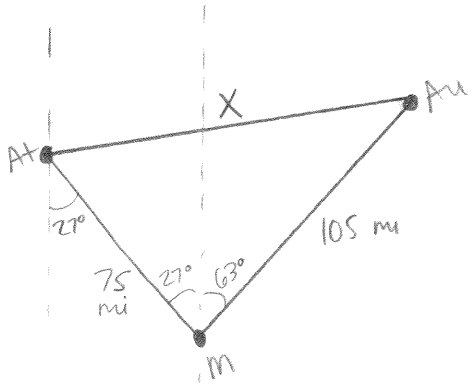
$\frac{\sin 12}{2.5} = \frac{\sin 25}{x}$

$x \approx 5.082$ mi to 1st location of ship from lighthouse

$\frac{\sin 12}{2.5} = \frac{\sin 143}{y}$

$y \approx 7.237$ mi to 2nd location of ship from lighthouse

(5) SAS



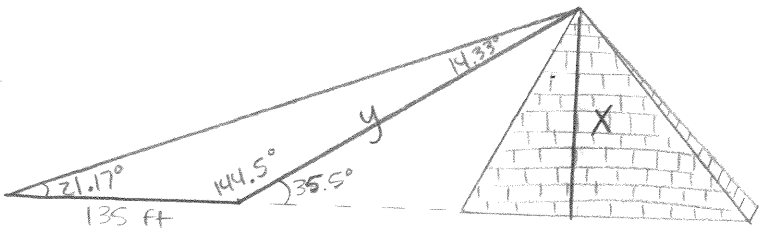
$60 \cdot 1.25 = 75$ mi

$60 \cdot 1.75 = 105$ mi

$x^2 = 75^2 + 105^2 - 2(75)(105)\cos 90°$

$x = \sqrt{75^2 + 105^2} \approx 129.035$ mi

(6) ASA



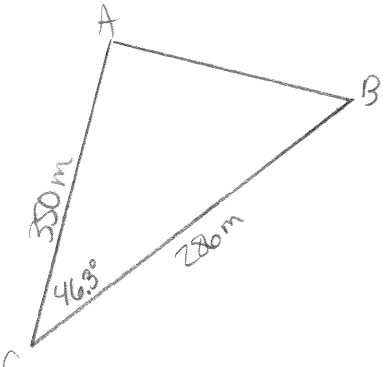
$\frac{\sin 14.33}{135} = \frac{\sin 21.17}{y}$

$y \approx 196.978$ ft

$\sin 35.5 = \frac{x}{196.978}$

$x = 196.978 \sin 35.5 \approx 114.386$ ft

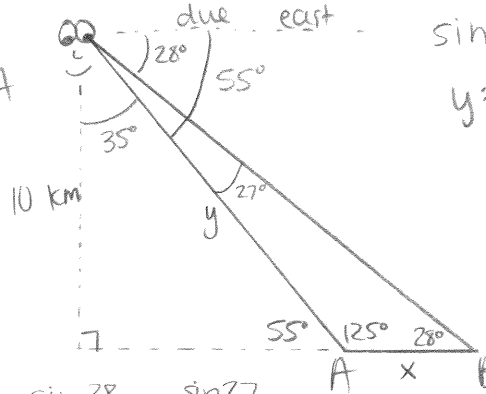
(7) SAS



$C^2 = 350^2 + 286^2 - 2(350)(286)\cos 46.3°$

$C \approx 12,843.417$ m

(8) ASA



$\sin 55 = \frac{10}{y}$

$y \approx 12.208$ km

$\frac{\sin 28}{12.208} = \frac{\sin 27}{x}$

$x \approx 11.805$ km

6.3/6.4 WS Name _____ Per ____

Solve the triangles.

x = i
y = j

1. A = 60°, c = 10, and a = 9
2. a= 5, b= 8, c= 9
3. C = 50°, b = 5, c = 2

< > i j

4-6 A) Find the component form, B) Find the linear form, and C) Find the magnitude.

4. Initial (4,2) terminal (7,1)
   a) ⟨3, −1⟩
   b) $3i - 1j$
   c) $\sqrt{10}$
5. From (0,-2) to (3,6)
   a) $3i + 8j$
   b) ⟨3, 8⟩
   c) $\sqrt{73}$
6. Initial (-6,4) terminal(0,1)
   a) $6i - 3j$
   b) ⟨6, −3⟩
   c) $\sqrt{45}$

7. Find a unit vector in the same direction of vector $\langle 8, -20 \rangle$.

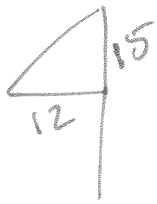
$8i - 20j$

8. Find the vector ***v*** with the given magnitude and the same direction as ***u***. $\|v\| = 8, u = \langle 4, -4 \rangle$

$v = \langle 4\sqrt{2}, 4\sqrt{2} \rangle$

9-11, Find the magnitude and direction angle of the vector ***v***.

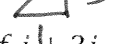
9. $v = 5(cos30°i + sin30°j)$ (√3/2, 1/2)
10. $v = 6i - 6j$
11. $v = 12i + 15j$



9: $\sqrt{18.75}$ 30°
10: $\sqrt{72}$ −45°
11: $\sqrt{369}$ 51°

12-14, Find the component form of ***v*** given its magnitude and the angle it makes with the positive *x*-axis.

12. $\|v\| = 3, \theta = 45°$ (45°)
13. $\|v\| = 3\sqrt{2}, \theta = 150°$ (30°)
14. $\|v\| = 3$, (71.5) v *in the direction of* $i + 3j$



12: $3\cos 45 i + 3\sin 45 j$
$\frac{3\sqrt{2}}{2} i + \frac{3\sqrt{2}}{2} j$
$\left\langle \frac{3\sqrt{2}}{2}, \frac{3\sqrt{2}}{2} \right\rangle$

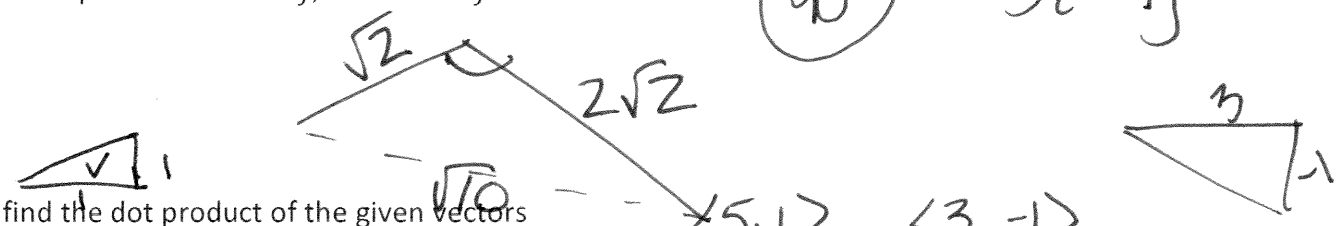
13: $3\sqrt{2}\cos 150 = -\frac{3\sqrt{3}}{2}$
$3\sqrt{2}\sin 150 = \frac{1}{2}$
$\left\langle -\frac{3\sqrt{6}}{2}, \frac{3\sqrt{2}}{2} \right\rangle$

14: $\tan^{-1} 3 = 71.5°$
$3\cos 71.5 \quad 3\sin 71.5$
$\langle .95, 2.8 \rangle$

15. Use the law of Cosines to find the angle between the vectors. Assume the angle is between 0° and 180°. Hint draw a picture. $v = i + j, w = 2i - 2j$

90°

$3i - 1j$



16-17 find the dot product of the given vectors

16. $u = \langle 6,3\rangle$ *and* $v = \langle 2,-4\rangle$ $u_1v_1 + u_2v_2$

$6 \cdot 2 + 3(-4) = 0$

17. $u = 5i + j$ *and* $v = 3i - j$

$15 - 1 = 14$

18-20, Use the vectors $u = \langle 2,2\rangle, v = \langle -3,4\rangle$ *and* $w = \langle 1,4\rangle$.

18. $4u \cdot v$

$4(-6+8)$

8

19. $v \cdot w$

$-3 + 16 = 13$

20. $(u \cdot 2v)w$

$(2(-6) + 2 \cdot 4)\langle 1,4\rangle$

$-12 + 8$

$\langle -4, -16\rangle$

21. Use the dot product to find the magnitude of u = <-5,12>.

$\sqrt{25 + 144} = 13$

22-23, Find the angle between the vectors.

22. $u = \langle 4,4\rangle$ *and* $v = \langle -2,0\rangle$

$\cos\theta = \frac{u \cdot v}{\|u\| \|v\|}$ $\frac{-8}{\sqrt{32} \cdot 2}$

45°

23. $u = \cos\left(\frac{\pi}{4}\right) i + \sin\left(\frac{\pi}{4}\right) j$ $\frac{\sqrt{2}}{2}$ $\frac{\sqrt{2}}{2}$ and?

24. Find $u \cdot v$ where θ is the angle between u and v. $\|u\| = 9, \|v\| = 36, \theta = \frac{3\pi}{4}$.

$\cos\frac{3\pi}{4} = \frac{u \cdot v}{(9)(36)}$

25-26, use vectors to find the interior angles of the triangle with the given vertices.

25. (1,2), (3,4), (2,5)

26. (-3,0), (2,2), (0,6)

27-28, determine if the vectors are parallel, orthogonal or neither.

27. $u = \langle 15,45 \rangle, v = \langle -5,12 \rangle$

3 -2.4

Neither

28. $u = i,\ v = i - 2j$

<1,0> <1,-2>

0 -2

Neither

29. Find the value of k so that the vectors u and v are a) orthogonal, b) parallel, c) neither.

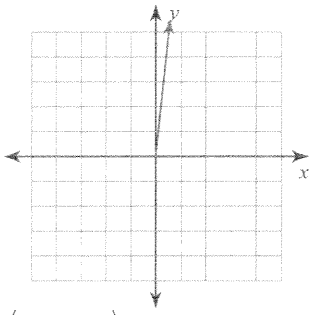
$u = 3i + 2j, v = 2i - kj$

30. Find two vectors in opposite directions that are orthogonal to vector u.

$u = -\frac{5}{2}i - 3j$

Answers to 6.3/6.4 Review (ID: 1)

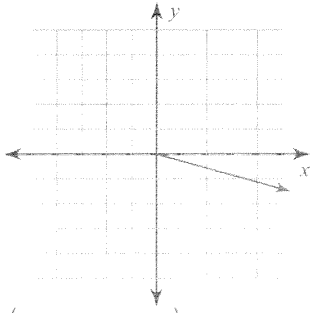
1) 22°
2) 139.4° or 2.6°
3) Not a triangle
4) 18°
5) 30 cm
6) 41 in
7) 26.8°
8) 34°
9) 23.4 units²
10) 55 units²
11) $\langle 4, 38 \rangle$
$2\sqrt{365} \approx 38.21$
83.99°



12) $\langle 8, 13 \rangle$
$8\mathbf{i} + 13\mathbf{j}$
$\sqrt{233} \approx 15.264$
58.39°

13) $\langle 39.76, -61.22 \rangle$
$39.759\mathbf{i} - 61.223\mathbf{j}$

14) $\langle 39, -11 \rangle$
$\sqrt{1642} \approx 40.522$
344.25°



15) $\langle 5\sqrt{2}, -5\sqrt{2} \rangle$
$7.071\mathbf{i} - 7.071\mathbf{j}$

16) $\langle 3, 11 \rangle$
$3\mathbf{i} + 11\mathbf{j}$
$\sqrt{130} \approx 11.402$
74.74°

17) $\langle 101.86, 5.34 \rangle$

18) $\langle 24, 19.68 \rangle$

19) $\left\langle -\frac{\sqrt{2}}{2}, \frac{\sqrt{2}}{2} \right\rangle$

20) $-11.45\mathbf{i} - 58.9\mathbf{j}$

21) $15\mathbf{i} + 47\mathbf{j}$

22) $-85\mathbf{i} + 10\mathbf{j}$